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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,394

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John P. Nohl

67341-2034; 04ARM0127

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EXAMINER

LUKS, JEREMY AUSTIN

ART UNIT

PAPER NUMBER

2837

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/777,394	NOHL ET AL.	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5-6, 9, 11-12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408). Rutschmann teaches a power train control system (Figure 1) comprising: an engine (Figure 1, #1) including multiple cylinders (2, 4); a controller (6) selectively activating multiple cylinders (2, 4) to provide a desired power displacement (Col. 1, Lines 8-16); and an exhaust system having an exhaust passage (9); a valve (15) and an electrical actuator (Col. 3, Lines 50-51); wherein the valve (15) is supported by said housing and arranged in said exhaust passage and selectively electrically actuated by said controller (6) to move said valve between multiple positions in response to said desired power displacement (Col. 3, Line 57-Col. 9, Line 39). Rutschmann fails to teach wherein substantially all of said exhaust gas flowing through said valve in each of said multiple positions for tuning said exhaust muffler, said valve increasing a backpressure within said exhaust passage by increasingly blocking said exhaust passage with said valve; an electrical actuator supported by said housing, wherein said housing includes a main housing portion and an actuator mounting pipe extending exteriorly away from said main housing portion, and an inlet pipe extending

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exteriorly away from said main housing portion proximate and generally parallel to said actuator mounting pipe; wherein said exhaust passage includes a valve body supporting said valve with a shaft extending into said valve body and said valve secured to said shaft, said electrical actuator rotating said shaft to move said valve between said multiple positions; said electrical actuator actuating said valve between said multiple positions; and a rod is arranged transverse to said shaft; a position sensor detecting said multiple positions of said valve, said position sensor communicating to said controller, and wherein said controller determines a malfunction condition based upon information from said position sensor; wherein said exhaust passage is in fluid communication with a tuning chamber and said tuning chamber is in fluid communication with an outlet pipe carrying exhaust gas from a main housing portion.

Lawrence teaches an exhaust muffler (Figure 3) comprising a housing (Figure 16, #100); a valve (40) supported by said housing (100) and arranged in said exhaust passage (104) movable between multiple positions for tuning said exhaust muffler (Col. 8, Line 60-Col. 9 Line 3); and an electrical actuator (114) supported by said housing (100), said electrical actuator (114) actuating said valve (40) between said multiple positions; wherein said housing (Figure 26, #150) includes a main housing portion (160) and an actuator mounting pipe (80', 162) extending exteriorly away from said main housing portion (160), and an inlet pipe (156) extending exteriorly away from said main housing portion (160) proximate and generally parallel to said actuator mounting pipe (80', 162) an exhaust passage (Figure 16, #104) includes a valve body (102) supporting said valve (40) with a shaft (108) extending into said valve body (102) and said valve

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(40) secured to said shaft (108), said electrical actuator (114) rotating said shaft (108) to move said valve (40) between said multiple positions; and a rod (Examiner is referring to the shaft portion secured between gear #112 and electrical actuating motor #114) is arranged transverse to said shaft (108), and said electrical actuator (114) moving said rod generally linearly to rotate said shaft (108); and wherein said exhaust passage (104) is in fluid communication with a tuning chamber (26) and said tuning chamber (26) is in fluid communication with an outlet pipe (30) carrying exhaust gas from a main housing portion. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann, with the apparatus of Lawrence to provide a valve means connected to the exhaust pipe for adjusting the sound produced by the system by controlling the flow of exhaust gas from the exhaust pipe to a sound attenuation chamber and exhaust outlet. Peube teaches wherein an exhaust gas flows (Figure 1, #7) through said exhaust passage (1), with substantially all of said exhaust gas (7) flowing through a valve (3) in each of multiple positions (Col. 4, Lines 41-43), said valve increasing a backpressure within said exhaust passage (1) by increasingly blocking said exhaust passage (1) with said valve (3); a position sensor (17b) detecting said multiple positions of said valve (14) (Col: 5, Lines 5-15), said position sensor (17b) communicating to said controller (16), wherein said controller (16) determines a malfunction condition based upon information from said position sensor (17b) (Col. 3, Line 66-Col.4, Line 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Peube to variably restrict the cross-section of the exhaust passage, which

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instantaneously varies the energy loss of the gases flowing in the pipe as a function of the quantity measured by the sensor, in order to principally reduce the low-frequency pulsations of the gases and low-frequency components of the noise which results from its very presence in the exhaust pipe.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 3 above, and further in view of Matsumoto (JP 2003161149 A).

Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Lawrence fail to teach at least one heat shield is arranged between said electrical actuator and said inlet pipe. Matsumoto teaches a heat shield (Figure 4, #72) outside of an inlet pipe (66), and when used in combination, between an inlet pipe and electrical actuator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Matsumoto in order protect the electrical actuator from damage due to the heat produced within the exhaust housing.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Tadokoro (4,926,636).

Rutschmann teaches a power train control system (figure 1) comprising: an engine (Figure 1, #1) including multiple cylinders (2, 4); a controller (6) selectively activating multiple cylinders (2, 4) to provide a desired power displacement (Col. 1, Lines 8-16); and an exhaust system having an exhaust passage (9); a valve (15) and an electrical actuator (Col. 3, Lines 50-51); wherein the valve (15) is supported by said housing and

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arranged in said exhaust passage and selectively electrically actuated by said controller (6) to move said valve between multiple positions in response to said desired power displacement (Col. 3, Line 57-Col. 9, Line 39). Rutschmann fails to teach a valve movable between multiple positions for tuning said exhaust muffler; wherein substantially all of said exhaust gas flows through said valve in each of said multiple positions, said valve increasing a backpressure within said exhaust passage by increasingly blocking said exhaust passage with said valve; an exhaust passage including a valve body supporting said valve with a shaft extending into said valve body and said valve secured to said shaft, said electrical actuator rotating said shaft to move said valve between said multiple positions; and a rod is arranged transverse to said shaft, and said electrical actuator moving said rod generally linearly to rotate said shaft. Peube teaches wherein an exhaust gas flows (Figure 1, #7) through said exhaust passage (1), with substantially all of said exhaust gas (7) flowing through a valve (3) in each of multiple positions (Col. 4, Lines 41-43), said valve increasing a backpressure within said exhaust passage (1) by increasingly blocking said exhaust passage (1) with said valve (3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann, with the apparatus of Peube to variably restrict the cross-section of the exhaust passage, which instantaneously varies the energy loss of the gases flowing in the pipe as a function of the quantity measured by the sensor, in order to principally reduce the low-frequency pulsations of the gases and low-frequency components of the noise which results from its very presence in the exhaust pipe. Tadokoro teaches an exhaust muffler (Figure 28, #11A)

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including a housing (See Figure 29) having an exhaust passage (115A); a valve (117A) supported by said housing (See Figure 29) and arranged in said exhaust passage (115A) movable between multiple positions for tuning said exhaust muffler (111A); the exhaust passage (115A) including a valve body (Figure 29) supporting said valve (117A) with a shaft (118) extending into said valve body (Figure 29) and said valve (117A) secured to said shaft (118), an actuator (120A) rotating said shaft (118) to move said valve (117A) between said multiple positions; and a rod (120a) is arranged transverse to said shaft (118), and said actuator (120A) moving said rod (120a) generally linearly to rotate said shaft (118). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Tadokoro to reduce or prevent torque shock that may be caused upon actuating or switching the valve, while controlling the change in torque generated by the engine.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Tadokoro (4,926,636) as applied to Claim 6 above, and further in view of Yashiro (5,739,483). Rutschmann, Peube and Tadokoro are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Tadokoro fail to teach wherein said housing includes a stop limiting travel of at least one of said rod and said shaft. Yashiro teaches a housing (Figure 2, #1) including a stop (19) limiting travel of a shaft (15). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the

apparatus of Rutschmann as modified, with the apparatus of Yashiro to better support the shaft and rod, increasing the durability of the valve mechanism.

5. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 5 above, and further in view of Yashiro (5,739,483). Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann, Peube and Lawrence fail to teach wherein; said housing includes an actuator mounting pipe extending into a main housing portion, and a first bearing arranged on said actuator mounting pipe supports one end of said shaft and a second bearing arranged on said valve body supports another end of said shaft. Yashiro teaches wherein a housing (1) includes an actuator mounting pipe (Figure 1, #8) extending into a main housing portion (2), and a first bearing (Figure 2, #18) arranged on said actuator mounting pipe (8) supports one end of said shaft (15) and a second bearing (18) arranged on said valve body supports another end of said shaft (15). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutschmann as modified, with the apparatus of Yashiro to better support the shaft and rod, increasing the durability of the valve mechanism.

6. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claims 1 and 14 above, and further in view of Tadokoro (4,926,636). Rutschmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutschmann further teaches a powered electrical actuator. Rutschmann,

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Peube and Lawrence fail to teach a return spring biasing a valve to one of a multiple positions in the event of power loss of the electrical actuator. Tadokoro teaches teach a return spring biasing (Figure 1, #26b) a valve (25) to one of a multiple positions (Col. 6, Lines 5-22), and would be capable of doing so in the event of power loss of the electrical actuator described by Rutchmann when used in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutchmann as modified, with the apparatus of Tadokoro to return the valve to an open state in the event of a malfunction.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutchmann (5,582,004) in view of Peube (5,655,367) and Lawrence (5,388,408) as applied to Claim 5 above, and further in view of Douglas (5,290,974). Rutchmann, Peube and Lawrence are relied upon for the reasons and disclosures set forth above. Rutchmann, Peube and Lawrence fail to teach wherein said housing includes a main housing portion having at least one baffle supporting an outer shell with at least one of said at least one baffle and said valve body including locating features providing a desired orientation between said at least one baffle and said valve body. Douglas teaches a housing (Figure 4) including a main housing portion having at least one baffle (46) supporting an outer shell (44) with at least one of said at least one baffle (46) and said valve body (62) including locating features (50, 66) providing a desired orientation between said at least one baffle (46) and said valve body (62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Rutchmann as modified, with the apparatus of Douglas to provide a tab

and notch alignment apparatus for an exhaust system which does not require the additional cost of aligning and welding steps during production.

Response to Arguments

8. Applicant's arguments filed 7/27/07 have been fully considered but they are not persuasive. The Examiner considers the obvious combination of Rutschmann, Peube, Lawrence, Matsumoto, Tadokoro, Yashiro and Douglas to teach all of the limitations as claimed by Applicant.

9. In response to Applicant's argument *that there is no location in the Rutschmann exhaust where a valve can be located and have substantially all of the exhaust flow through the valve*, the Examiner disagrees. The Rutschmann device does include a dual exhaust system, as well as a multi-cylinder engine where a second set of cylinders (Figure 1, #4) can be shut off, leaving only a first cylinder set (2) in operation. When only cylinder set #2 is operating, exhaust flows through exhaust line #9 and through valve 15, which may be throttled. Some exhaust may flow through bypass line #16, however, a substantial portion of the exhaust will flow through exhaust line #9 and in turn through valve #15 (Col 3, Line 22 – Col. 4, Line 20). Additionally, for arguments sake, placing a valve upstream of bypass line #16 in exhaust line #9 would be a location in which **all** exhaust gas would pass through the valve when only the first set of cylinders (2) are in operation.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

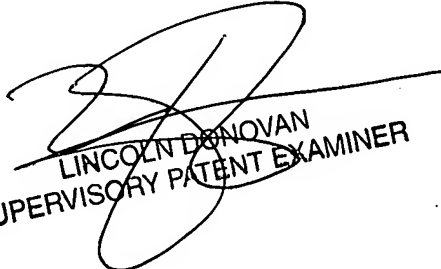
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837
Class 181


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